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Validity of Capital Structure Irrelevance and Relevance Theory amongst Listed Firms in Mauritius

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Abstract:
This study is an empirical test of the Modigliani and Miller (1958, 1963) irrelevance and relevance theories of capital structure on companies listed on the Mauritian stock exchange with a balanced panel of ten (10) non-financial firms over the period 2010 – 2019. Fixed and random regression models were used to analyze collated data from the firms' financial statements. Two dependent variables of share price and Tobin's Q were employed, while the explanatory variables include short-term loan to equity, long-term loan to equity, and debt to equity with control variables of firm size, firm age and growth. We find that in the absence of taxation, capital structure is relevant to firm's value of Mauritian listed firms but when taxation is introduced, capital structure becomes irrelevant to value of the firms. However, we also find that age is not a significant factor that drives firm's value in Mauritius, but size and growth are the dominant factors that influence Mauritian's firm value. It is, therefore, recommended that listed companies in Mauritius should focus more on their growth opportunities that align with their sizes to drive their market value.

Keywords: *Capital Structure, Relevance and Irrelevance Theory, Share Price, Term Loan to Equity Ratio*

1. Introduction

Long-term funding and its sources will continue to elicit interest amongst academics and non-academics under varying circumstances, with an ever present need to proffer veritable advice to companies on the options suitable for the financing of their various long-term investments. The ground-breaking work of Modigliani and Miller (1958), on the irrelevancy of capital structure under certain assumptions, remains an endearing foundation for the study of capital structure (Abor, 2005; Harris & Raviv, 1991; Fosberg, 2010; Luigi & Sorin, 2011; Pagano, 2005; Pan, 2012; Papescu & Visinescu, 2011; Shiller, 2004). Although, Rubinstein (2002) argued that the work of William (1937) is the root of capital structure irrelevancy theory which Modigliani and Miller (1958) expanded upon.

Nevertheless, the main argument of Modigliani and Miller (1958) is that the decision to use the combination of equity and debt in the capital structure of a firm is independent of its value and this is presupposed under a frictionless capital market devoid of transaction or bankruptcy costs and taxes, where investors and companies have equal access to information and funding in the market. Consequently, Modigliani and Miller (1958, 1963) argue that the value of the firm stems from its earning power and the risk of its underlying assets and not its capital structure or formation, and given that a firm has a free cash flow, the fundamentals of the business the cash would be applied to, are the valid parameters to estimate the value of the firm.

Notwithstanding the eloquence of their assertions, is there actually a frictionless capital market in the real world? Do firms raise long-term funds from the capital markets without incurring transaction costs? Or, is there no likelihood that the purpose of the long-term fund on request from the capital market when granted may not be paid back and the firm wound-up? Or, can firms operate without paying any form of tax to government in the absence of tax holidays? Or can lenders of funds give out interest-free loans to firms without any direct or indirect ownership in the firms?

The above pertinent questions obviously solicit answers from Modigliani and Miller thoughts, and little wonder, they revised their propositions, when in 1963 they recognized the existence and relevance of the twin elements of interest and tax in the capital structure decisions of companies. Therefore, the focus of this study is to empirically ascertain if the Modigliani and Miller's concepts of irrelevance and relevance theories of capital structure hold sway amongst companies listed on the stock exchange of Mauritius between 2010 and 2019.

2. Literature Review

2.1. Conceptual Issues

Capital structure refers to the combination of equity and debt which firms use to finance their long-term assets (Modigliani & Miller, 1958) and it is subsumed in the financial structure of an entity, because financial structure is the totality of funding arrangements at firms' disposal for utilization on both short-term and long-term assets and liabilities (Brendea, 2018; Myers, 2000; Nirajini and Priya, 2013). Myers and Majluf (1984) view capital structure as the choice of equity, debt, and hybrid securities from which firms elect to finance and promote their activities. However, prior to this election, certain questions do arise, such as – should it be all equity finance? Should it be a mix of equity and debt? Can an optimum combination of equity and debt, which will minimize cost of capital and enhance firm value, be found? To answer the aforesaid questions, firms, no doubt, will have to critically examine their business risk, financial flexibility – staying away from debt covenants that forestall other funding options, competition, environmental concerns, shareholders' wealth maximization, profitability, and growth potential or rate.

Nonetheless, divergent views have been posited by different researchers on the different factors that influence capital structure decisions such as the studies of Weston (1961), Solomon (1963), Barges (1963), Wippern (1966), Sarma and Rao (1967), Davenport (1971), Marsh (1982), Barton and Gordon (1988), Singh Hamid, and Yoichi (1992), Wald (1999), Pandey, Manoj, and Chotigeat (2000), Pandey (2001), Ozkan (2001), Gonenc (2003), and Ogieva and Ogiemudia (2019). But Durand (1952) introduced us to the concepts of Net Income (NI) and Net Operating Income (NOI) approach on the effects of capital structure decisions on the value of the firm. The NI posits that capital structure decisions affect the cost of capital and the value of the firm, while the NOI stresses that capital structure decisions do not affect the cost of capital and the value of the firm. Modigliani and Miller (1958) study is in support of the NOI approach.

2.2. Empirical Literature

Hasby, Buyung and Hasbudin (2017) examined the effect of firm size and diversification on capital structure and firm value of listed manufacturing firms in Indonesia during 2006 to 2014. They find that capital structure does not affect the value of the firm, but diversification and company size have effects on the value of the firm. Contrarily, Fosberg and Paterson (2010) did extensive tests of the original Modigliani and Miller (1958, 1963) models on capital structure irrelevance and relevance theories, with the use of a large data set of 18,539 firms covering 1998 to 2007 from Compustat database. They find from their fixed effects regression models that the postulations of Modigliani and Miller (1958, 1963) are not valid whether in a world without tax or with tax and neither can they be used as precise predicators of firm value. However, Ogbulu and Emeni (2012) in their study of 124 firms listed on the Nigerian stock exchange as at December 31, 2007, show with results from their ordinary least squares regression model that equity capital is irrelevant to firm's value, while long-term debt is relevant to firm's value.

These mixed findings confirm the finding of Modigliani and Miller (1958) on one hand and the finding of Modigliani and Miller (1963) on the other hand and are likely the consequence of the brevity of the time horizon of the study's data set being one year's data of the examined firms.

Krstevska, Nenovski and Kostovska (2017) test the validity of the Modigliani and Miller (1958) capital structure irrelevance theory on Macedonian banks' calculated risk measure and leverage ratio, using panel estimation technique on collated data. They find no evidence to support the capital irrelevance theory. Similarly, Cline (2015) did an extensive test on the irrelevance of capital formation on the capital requirements of the largest US banks during 2002 – 2013, with a robust demonstration of the cost of capital and its implications on interest rate that would be charged by the banks and the subsequent impact this would have on the country's gross domestic product. The findings of the study do not support Modigliani and Miller (1958) irrelevant capital structure theory. Also, Lawal (2014) investigated capital structure and value of the firm of listed Nigerian deposit money banks, covering the period of 2007 – 2012. The findings reveal that debt instruments are significant, while equity is moderately significant in the value of the banks and not irrelevant. In fact, result of the adjusted R-squared (R^2) of 0.979022 from the ordinary least square regression indicates that circa 98% variations in the value of the banks are explained by the interactions of debt and equity. The coefficients' analysis shows that debt increases the value of the firm by 155%, while equity accounts for 23.4% increases, these results invalidate the Modigliani and Miller (1958) irrelevant capital structure theory and validate Modigliani and Miller (1963) that capital structure is indeed relevant to the value of the firm. Abina and Akinola (2020) did a more in-depth study on listed Nigerian banks' capital structure for an extensive period of thirty-nine (39) years (1981-2019), with a good blend of statistical analysis of collated data implemented with Johansen Co-integration test, Error Correction Model (ECM), and Granger Causality tests. Results of their ECM model I show that debt finance in the capital structure of the banks is irrelevant to their value, while equity finance is relevant to the banks' value, so we have affirmations of both Modigliani and Miller (1958, 1963). More so, results of their ECM model II indicate that leverage is relevant to the value of the banks and this is in tandem with Modigliani and Miller (1963) capital structure relevant theory.

Arikekpar (2020) examined the impact of capital structure on some selected listed manufacturing companies in Nigeria during the period of 2014-2018. Findings from the study's fixed effect regression model show that capital structure has significant positive influence on the financial performance of the investigated firms and this confirms Modigliani and Miller (1963) capital structure relevance theory.

Omrawoo, Jaunky and Ramesh (2017) study of the determinants of capital structure of listed non-financial firms in Mauritius covering the period of 2010 - 2015 find that earnings per share is a significant factor for determination

of capital structure. This validates Modigliani and Miller (1963) capital structure relevance theory. Gourdeale and Polodoo (2016) examined the determinants of capital structure of listed financial and non-financial Mauritian firms during 2006-2014. They find that profitability, liquidity, tangibility, growth opportunities and size are relevant elements of capital structure which, in turn, confirm the relevance of capital structure to the value of the firms. Similarly, Seetanah, Seetah, Appadu and Padachi (2014) study of capital structure and firm performance of Mauritius' listed financial and non-financial firms for the period of 2005-2011 find that capital structure is one of the main determinants of Mauritian firms' performance besides firm size and business risk. This is a clear demonstration of the overarching dominance of the relevance of capital structure.

From our empirical literature reviews, we observed that there is a dearth of empirical work on the Modigliani and Miller (1958, 1963) irrelevance and relevance capital structure theories pertaining to companies listed on the Mauritius' stock exchange. This study is, therefore, an attempt to provide more empirical evidence on the validity of the Modigliani and Miller (1958, 1963) irrelevance and relevance capital structure theories on the firm value of companies listed on the Mauritius' stock exchange.

3. Methodology

This study adopts the ex-post factor and longitudinal research designs for descriptive statistics. Correlation and panel data regression analysis were employed in the analysis of secondary data covering the period from 2010 to 2019 collated from the published financial statements of the examined listed Mauritius' companies. Our sample companies are in the non-financial sectors of manufacturing, services, and agriculture and they are restricted to ten (10) due to incomplete data of the other companies.

3.1. Model Specification

We have four (4) models to explore the objective of our study, which, in their functional forms, are given as follows:

Model 1: SPX = f(STDE, LTDE, DETE, FSIZE, logFIRA, FGR) .....(1)

Model 2: TOBIN Q = f(STDE, LTDE, DETE, FSIZE, logFIRA, FGR) .....(2)

Model 3: SPX = f(TSTDE, TLTDE, TDETE, FSIZE, logFIRA, FGR) .....(3)

Model 4: TOBINQ = f(TSTDE, TLTDE, TDETE, FSIZE, logFIRA, FGR) .....(4)

The econometric versions of the models are given as follows:

Model 1: Share Price

$$SPit = \beta_0 + \beta_1 STDEit + \beta_2 LTDEit + \beta_3 DETEit + \beta_4 FSIZEit + \beta_5 logFIRAit + \beta_6 FGRit + \varepsilon it \quad (1.1)$$

Model 2: TOBINQ

$$TOBINQit = \beta_0 it + \beta_1 STDEit + \beta_2 LTDEit + \beta_3 DETEit + \beta_4 FSIZEit + \beta_5 logFIRAit + \beta_6 FGRit + \varepsilon it \quad (2.1)$$

Model 3: Share Price

$$Xit = \beta_0 + \beta_1 TSTDEit + \beta_2 TLTDEit + \beta_3 TDETEit + \beta_4 FSIZEit + \beta_5 log\ FIRAEit + \beta_6 FGRit + \varepsilon i \quad (3.1)$$

Model 4: TOBINQ

$$Xit = \beta_0 + \beta_1 TSTDEit + \beta_2 TLTDEit + \beta_3 TDETEit + \beta_4 FSIZEit + \beta_5 logFIRAit + \beta_6 FGRit + \varepsilon it \quad (4.1)$$

Where:

SPX = Share Price

TOBIN Q = Market Capitalisation/Total Asset

STDE = Short Term Debt to Equity LTDE = Long Term Debt to Equity DETE = Total Debt to Equity

TSTDE = Tax Rate x Short Term Debt to Equity TLTDE = Tax Rate x Long Term Debt to Equity TDETE = Tax Rate x Total Debt to Equity

Control variables:

FSIZE = Log of Total Asset

FIRA = Log of firms' age (the log transformation of ages of our firms is to avoid the obvious likely conundrum of outliers. The ages of the firms are displayed in table 1 under appendix (1)

FGR = Revenue growth of the companies

$\beta 0it$ = Constant (Intercept)

β_1, β_2, β_3, β_4, β_5, and β_6 are parameters to be estimated.

ε_{it} = Error Term

it = the ith of the firm at time t

Models 1 and 2 are to test for capital structure irrelevancy, while models 3 and 4 are to test for capital structure relevancy both to listed companies in Mauritius respectively.

The *apriori* expectations of the variables in models 1 and 2 for the capital structure irrelevance to hold are such that β_1 to β_3 will be insignificant irrespective of their signs whilst that of models 3 and 4 for the capital structure relevance to hold are such that β_1 to β_3 will be significant and positive. However, the results of the control variables will provide further intuitions to the expected results.

4. Empirical Results and Discussion

4.1. Descriptive Statistics

The independent variables of models 1 and 2 are the same with that of models 3 and 4, in the same vein, the dependent variables of models 1 and 3 are the same likewise that of models 2 and 4. So, the dependent variables of models 1 and 2 are regressing on the same set of independent variables which is also the case with models 3 and 4. Given these circumstances just described, the descriptive statistics of models 1 and 2 and that of models 3 and 4 are displayed in tables 2 and 2.1 in appendix 2 respectively. We can see from both Tables that SPR variation from the mean is quite wide as indicated by its standard deviation, while TOBIN'S Q has a very low variation from the mean as evidenced by its standard deviation. These may suggest the likely strength of the results of the models with TOBINQ has the dependent variables over the results where SPR is the dependent variable. The independent variables of STDE, LTDE, TSTDE, and TLTDE in Tables 2 and 2.1 show wide deviations from their respective means, especially LTDE, TSTDE, and TLTDE as revealed by their standard deviations. This is not surprising because the sample companies are from diverse industries as displayed in table 1 in appendix 1, and it is unlikely to have homogeneity of financial structures across industries. The different deviations from the mean of DETE and TDETE may be occasioned by the impact of taxation on TDETE. It will be interesting to see how they both turn out to impact the dependent variables in our models. Our control variables of FSIZ, FIRA, and FGR are quite stable around their respective means.

4.2. Correlation Matrix of Explanatory Variables

Presented in appendix 3 are the individual correlation results of models one to four in Tables 3.3 and a summarized result in Table 3.4. From table 3.4, it is evident that the dependent variables are not significantly correlated with the independent variables (excluding the control variables) and issue of multi-collinearity is not expected to occur. But the result of models (3) and (4) have lower correlations than that of models one (1) and two (2). These results may suggest probable stronger results from the regression results of models three (3) and four (4) over that of one (1) and two (2).

However, a look at tables 3, 3.1, 3.2, and 3.3 reveals that the independent variables (excluding the control variables) are highly correlated at the 1% level of significance. It is quite likely that these results will stimulate a feedback effect to give rise to the incidence of multi-collinearity on our regression models. The results in table 3.4 further show that the dependent variables of models one (1) and three (3) move in opposite (negative) direction with the independent variables save FSIZ (size) that moves in the same direction with the dependent variables. The opposite is the case with dependent variables of models two (2) and four (4) that move in the same direction (positive) with their independent variables apart from FSIZ that moved in the opposite direction. It will be interesting to see how these will sit with the results of our regression models.

4.3. Panel Unit Root Test

From Table 4 in Appendix 4, the trio panel unit root tests of Levin & Chut, ADF, and Philip-Peron confirm that all the variables under investigation are integrated of order one (1) and are stationary at second difference, that is I(2). Consequently, our data set can be used for further estimation.

4.4. Panel Regression Results

Since we have four (4) models, we shall be examining them in turns.

4.4.1. Analysis of Model 1 Results

Recall that Model 1 is to test for the irrelevance of capital structure (please refer to 3.2 above) where the *apriori* expectations are such that β_1 to β_3 are expected to be insignificant irrespective of their signs for the capital structure irrelevance to hold (please refer to 3.3 above). The results of Model 1 are displayed in table 5 under Appendix 5. The results of the Hausman test in table 5.1 show that the p-value is less than 0.05, that is: 0.02500 < 0.05. We, therefore, reject the null hypothesis which is the Random Effects Model (REM) and accept the Fixed Effects Model (FEM) because its efficiency is higher as confirmed by the aforesaid p-value and it is more suitable for our analysis.

The results of FEM in table 5 show that not all the coefficients ($\beta 1$ to $\beta 3$) of the variables STDE, LTDE, and DETE are insignificant, in fact, the coefficient ($\beta 2$) of LTDE is significant at the 1% level. These results clearly show that our apriori expectation of $\beta 1$ to $\beta 3$ expected to be insignificant are not meant, therefore, capital structure formation amongst listed companies in Mauritius is not irrelevant. Our finding is consistent with the findings of Abina and Akinola (2020), Arikekpar (2020), Krstevska *et al* (2017), Cline (2015), Lawal (2014), Seetanah *et al* (2014), and Fosberg and Paterson (2010) but inconsistent with the findings of Modigliani and Miller (1958) and Hasby *et al* (2017).

Furthermore, results of our control variables show that they all have significant impact on SPR. FSIZ and FGR indicate positive impact on SPR, indicating that share price (SPR) of firms in Mauritius depends heavily on the size and growth of the companies more than any other factor, given their combined coefficient value of 77.872007 (73.57518 + 4.296827) and this is consistent with the findings of Gourdeale and Polodoo (2016) and Hasby *et al* (2017).

The R-squared and adjusted R-squared show that our variables account for 83.14% and 80.12% (after adjusting for degree of freedom) of systematic changes in SPR respectively. And the result of the F-statistics, which is significant at 1%, confirms that the variables have a very good overall fitness in influencing SPR. But the result of the Durbin-Watson statistics of 0.873434 indicate the incidence of multi-collinearity which concern was expressed during analysis of our

correlation results. However, the strong adjusted R-squared (80.12%) and F-statistics suggest that the low Durbin-Watson statistics is not a threat to the strength of our model's ability to explain the changes in SPR, especially given the nature of our independent variables, therefore suggesting the reliability and dependability of the model.

4.4.2. Analysis of Model 2 Results

Just like Model 1, the objective of Model 2 is to ascertain if capital structure is irrelevant to listed firms in Mauritius. But first, we need to find out which regression model (REM or FEM) is a better fit with higher efficiency for our analysis. The results of the Hausman test displayed in table 5.3, under appendix 5, show that its p-value of 0.01700 is less than 0.05 that is 0.01700 < 0.05; consequently, we reject the null hypothesis - REM and accept the alternate hypothesis – FEM due to its higher efficiency.

The results of the FEM displayed in table 5.2 under appendix 5 present straightforward answers to our apriori expectations, wherefore the statistical significance outcomes of $\beta 1$ to $\beta 3$ are expected to be insignificant but our results show that they are very significant at the 1% level of statistical significance. This implies that despite changing our dependent variable from SPR to TOBIN'S Q, the fact remains that capital structure is not irrelevant to listed companies in Mauritius. The finding here is consistent with the findings of Abina and Akinola (2020), Arikekpar (2020), Krstevska *et al* (2017), Cline (2015), Lawal (2014), Seetanah *et al* (2014), and Fosberg and Paterson (2010) but inconsistent with the findings of Modigliani and Miller (1958) and Hasby *et al* (2017). More so, growth (FGR) factor appears to be the biggest influencer of the value of companies in Mauritius as shown by the value of $\beta 6$ in table 5.2, while size (FSIZ) and age (FIRA) impact negatively on the companies' value. The outcomes suggest that value of companies in Mauritius is heavily dependent on their growth potentials. This finding is consistent with the finding of Gourdeale and Polodoo (2016) and Hasby *et al.* (2017). The R-squared of 0.976515 and the adjusted R-squared of 0.972321 are quite impressive as they show that systematic changes in TOBIN'S Q are 97.23% (after adjusting for degree of freedom) explained by our set of independent variables and the result of the F-statistics, which is at the 1% level of significance, further buttresses the strong joint relationship of the independent variables to yield this outcome, meaning changes in the TOBIN'S Q not explained by our model is 2.77% which indicates a very high degree of reliability of our model for decision purposes.

4.4.3. Analysis of Models 3 and 4 Results

We need to first determine which regression model is suitable for our analysis. The Hausman test results' p-values of Model 3 (p-value: 0.8235) and Model 4 (p-value: 0.0033) as displayed in tables 5.5 and 5.7 respectively in appendix 5 show that for Model 3, REM is the preferred regression model, while for Model 4, FEM is the preferred regression model due to their individual higher efficiencies. Apriori expectations for Models 3 and 4 are that for the capital structure relevancy to hold, $\boldsymbol{\beta_1}$ to $\boldsymbol{\beta_3}$ will be significant and positive, the results of REM and FEM in tables 5.5 and 5.7 show that the apriori expectations are not meant which means that capital structure is not relevant amongst listed firms in Mauritius when taxation is introduced. This finding is consistent with the findings of Abina and Akinola (2020), and Hasby *et al* (2017) but inconsistent with the findings of Fosberg and Paterson (2010), and Modigliani and Miller (1963).

Systematic changes in SPR of Model 3 of 19.39% (R-squared) and 14.19% (adjusted R- squared - after adjusting for degree of freedom) respectively are explained by the explanatory variables, while changes in TOBIN'S Q of Model 4 of 93.05% (R-squared) and 91.81% (adjusted R-squared - after adjusting for degree of freedom) respectively are explained by the explanatory variables. Model 4 shows a stronger model than Model 3 due to its strong Durbin-Watson statistics of 2.313153 (no serial correlation) and very high adjusted R-squared (91.81%). Size (FSIZ) has significant inverse relationship with SPR of Model 3 but moves insignificantly in the same direction with TOBIN'S Q of Model 4. While age (FIRA) moves in the same direction with SPR although insignificant, it moves significantly in inverse direction with TOBINQ. Growth (FGR) has inverse and insignificant influence on SPR but moves significantly in the same direction with TOBINQ.

5. Conclusion and Recommendations

We have been examining the significance of capital structure and how this influences the value of the firm, the works of Modigliani and Miller (1953, 1963) on the irrelevance and relevance of capital structure theories provided the impetus for our study. Four (4) regression models were used to test if capital structure is relevant or irrelevant to the value of listed companies in Mauritius. We find that the results are even amongst the models. The first two (2) models revealed that capital structure is relevant in determining the value of listed firms in Mauritius while the other two (2) models, which introduced taxation as a multiplicand to the explanatory variables of STDE, LTDE, and DETE, show that capital structure is irrelevant to the value of listed firms in Mauritius.

However, the summarised regression models' results for Models one (1) to four (4) as displayed in Table 5.8 in Appendix 5 show that size (FSIZ) plays a significant role in impacting the capital structure value of listed companies in Mauritius. More so, age (FIRA) inversely influences the firms' value and significantly so at the 1-5% levels of statistical significance as depicted in Table 5.8. This is quite revealing because it would have been expected that the older a firm gets, the better its experience and expertise in understanding its industry with expected stronger financial capability and stability that would positively engender its value. Growth (FGR) is a significant dominant factor that positively influences the value of the companies as shown in Table 5.8. Little wonder age has an inverse relationship with the value of the firms because it does not matter how old a company might be, what matter is demonstrable growth potential that drives value and not age.

Notwithstanding, where the pendulum of capital structure irrelevance or relevance swings to, we suggest that listed companies in Mauritius should focus more on their growth opportunities that align with their sizes to drive their market value. More studies with larger sample sizes and longer period beyond ten (10) years are, therefore, encouraged for further elucidations on what drives companies' market value in Mauritius besides growth and size.

6. References

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Appendix

Details of Sample Companies

S/N	Company Name	Age									
1	Air Mauritius	16	5	15	17	4	5	6	5	15	22
2	C-Care (Medical and Surgical Centre)	17	6	16	18	5	6	7	6	16	23
3	Innodis	18	7	17	19	6	7	8	7	17	24
4	Ireland Blyth	19	8	18	20	7	8	9	8	18	25
5	Les Gaz Industriels Ltée	20	9	19	21	8	9	10	9	19	26
6	Livestock Feed Mauritius	21	10	20	22	9	10	11	10	20	27
7	Lux Island Resorts	22	11	21	23	10	11	12	11	21	28
8	Medine	23	12	22	24	11	12	13	12	22	29
9	New Mauritius Hotels	24	13	23	25	12	13	14	13	23	30
10	United Basalt Products	25	14	24	26	13	14	15	14	24	31

Table 1: Name of Sample Companies and Their Ages from 2010 – 2019

Appendix 2: Results of Descriptive Statistics

	SPR	TOBIN_Q	STDE	LTDE	DETE	FSIZ	FIRA	FGR
Mean	50.0060	1.4161	27.3584	51.5411	1.2416	6.5623	2.6251	2.8891
Median	43.2500	0.9890	24.1059	32.5011	0.958	6.5787	2.7081	1.0373
Maximum	152.000	6.0140	64.5854	254.5612	7.5719	7.7813	3.434	28.4976
Minimum	1.6800	0.5001	7.1385	4.9630	0.1385	5.3511	1.3863	0.2296
Std. Dev	37.5793	1.1601	13.3983	49.1533	1.1901	0.7175	0.5073	5.4586
Observation	100	100	100	100	100	100	100	100

Table 2: Descriptive Statistics of Models 1 and 2

	SPR	TOBIN_Q	TSTDE	TLTDE	TDETE	SIZE	FIRA	FGR
Mean	50.0060	1.4161	-151.8873	56.0666	-2.5476	6.5623	2.6251	2.8891
Median	43.2500	0.9890	-287.8644	-195.9967	-6.7954	6.5787	2.7081	1.0373
Maximum	152.000	6.0140	2304.6570	20713.3400	262.3222	7.7813	3.4340	28.4976
Minimum	1.6800	0.5001	1957.1890	-10834.8700	-169.6992	5.3511	1.3863	0.2296
Std. Dev	37.5793	1.1601	13.3983	2959.4720	42.4432	0.7175	0.5073	5.4586
Observation	100	100	100	100	100	100	100	100

Table 3: Descriptive Statistics of Models 3 and 4
Source: Authors' Computations (2021) Using Eviews 8.0

Results of Correlation Matrix

Correlation t-Statistic Probability	SPR	STDE	LTDE	DETE	FSIZ	FIRA	FGR
SPR	1						

STDE	-0.3735	1.00					
	-3.9853	-----					
	0.0001	-----					
LTDE	-0.3805	0.3340	1				
	-4.0730	3.5081	-----				
	0.0001	0.0007	-----				
DETE	-0.4176	0.7148	0.8470	1			
	-4.5496	10.1172	15.7740	-----			
	0.0000	0.0000	0.0000	-----			
FSIZ	0.0882	(0.1479)	0.0946	-0.1179	1		
	0.8762	(1.4805)	0.9408	-1.1753	-----		
	0.3831	0.1419	0.3491	0.2427	-----		
FIRA	-0.0164	0.4900	0.2868	0.3915	0.3077	1	
	-0.1623	5.5644	2.9632	4.2123	3.2014	-----	
	0.8714	0.0000	0.0038	0.0001	0.0018	-----	
FG	-0.3170	0.5510	0.6141	0.7963	-0.4890	0.2081	1
	-3.3086	6.5361	7.7034	13.0314	-5.5495	2.1060	-----
	0.0013	0.0000	0.0000	0.0000	0.0000	0.0378	-----

Table 4: Model 1 Correlation Results
Source: Authors' Computation (2021) Using E-Views 8.0

Correlation t-Statistic Probability	TOBIN_Q	STDE	LTDE	DETE	FSIZ	FIRA	FGR
TOBIN_Q	1						

STDE	0.4603	1					
	5.1335	-----					
	0.0000	-----					
LTDE	0.5030	0.3340	1				
	5.7620	3.5081	-----				
	0.0000	0.0007	-----				
DETE	0.6314	0.7148	0.8470	1			
	8.0595	10.1172	15.7740	-----			
	0.0000	0.0000	0.0000	-----			
FSIZ	-0.5361	-0.1479	0.0946	-0.1179	1		
	-6.2864	-1.4805	0.9408	-1.1753	-----		
	0.0000	0.1419	0.3491	0.2427	-----		
FIRA	0.1138	0.4900	0.2868	0.3915	0.3077	1	
	1.1343	5.5644	2.9632	4.2123	3.2014	-----	
	0.2594	0.0000	0.0038	0.0001	0.0018	-----	
FG	0.9318	0.5510	0.6141	0.7963	-0.4890	0.2081	1
	25.4100	6.5361	7.7034	13.0314	-5.5495	2.1060	-----
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0378	-----

Table 5: Model 2 Correlation Results
Source: Authors' Computation (2021) Using E-Views 8.0